

DN A01424
USSN 10/681,419
Amendment filed August 2, 2007

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REMARKS

Status of Claims

Claims 1, 2 and 4 remain pending.

Claim 3 has been cancelled.

Independent Claim 1 has been amended, by the foregoing amendments, to more clearly recite the novel features of the present invention. More particularly, certain features of Claim 3 have been incorporated into independent Claim 1, and Claim 3 has been cancelled accordingly.

Each of Claims 2 and 4 has been amended, by the foregoing amendments, to correct claim language and address clarity issues raised by the Examiner, as discussed in further detail below.

The Present Invention

The present invention relates generally to a method for abating waste oxide gases from a waste oxide gas stream. More particularly, as recited in independent Claim 1, this method comprises: (a) providing a first industrial process which produces a waste oxide gas stream comprising at least one waste oxide gas (e.g., nitrogen oxides, sulfur oxides and carbon oxides); (b) providing a second industrial process selected from the group consisting of oxidation, partial oxidation, oxidative dehydrogenation, and ammoxidation and which abates the quantity of said waste oxide gas stream when the waste oxide gas stream is fed as a feed stream to the second industrial process; and (c) feeding at least a portion of the waste oxide gas stream, from the first industrial process, as a feed stream, to said second industrial process. Furthermore, the first industrial process may be selected from the group consisting of: a chemical manufacturing process, a combustion process, a process comprising a gas turbine, a high-temperature industrial manufacturing process, a process comprising an air compressor, a co-generation process, and a waste oxide abatement system.

Thus, generally, the method of the present invention abates waste oxide gases (WOGs) by linking previously unrelated processes, without intermediate treatment of

feed streams. In other words, a first process produces a waste oxide gas stream, which is fed to a second, separate and unrelated process which is capable of utilizing that WOG stream and abating the WOGs during the second process without pretreatments to remove or destroy the WOGs. Thus, the method of the present invention uses a waste gas stream from a first process as a direct feed stream for another (second) process, which is selected for it's ability to abate waste oxides without pretreatment of the WOG stream and without detrimental effects to the production of the desired reaction products of the second process. The second process may be any of the following: oxidation, partial oxidation, oxidative dehydrogenation, and ammoxidation

Claim Rejections Under 35 U.S.C. § 112, second paragraph

On pages 2-3 of the Office Action, Claims 2 and 4 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite because the terms "traditional" and "routinely" are recited therein, and because the phrase "at least one of . . ." in Claim 4 is improper Markush technology. By the foregoing amendments to Claims 2 and 4, the offending terms, "traditional" and "routinely," have been deleted, and the phrasing in Claim 4 has been corrected to constitute proper Markush language. In the foregoing circumstances, it is believed that these rejections have been adequately addressed and withdrawal of these rejections is, therefore, hereby respectfully requested.

Claim Rejections Under 35 U.S.C. §§ 102(b) & (e)

On page 2 of the Office Action, Claims 1-4 have been rejected, under 35 U.S.C. § 102(b), as being anticipated by Gambell et al. (US4,457,904), as well as under 35 U.S.C. § 102(e), as being anticipated by Allison et al (US6,911,193), and under 35 U.S.C. § 102(e), as being anticipated by Hammer et al. (US2003/0228246). Applicants respectfully traverse these rejections for the reasons which follow.

None of the references cited by the Examiner (i.e., Gambell et al., Allison et al., and Hammer et al.) anticipate the present invention as recited in amended independent Claim 1 because none of them disclose all the features of the present invention.

In particular, Gambell et al. appears to disclose a method for production of hydrogen cyanide wherein a combustion (first) process produces a waste oxide gas stream comprising carbon monoxide, which is fed to a (second) process in which the carbon monoxide is reacted with ammonia in the presence of a catalyst to form hydrogen cyanide. Unlike the method of the present invention, the "second" process disclosed in Gambell et al. is not an oxidation, partial oxidation, oxidative dehydrogenation, or ammonoxidation process, but rather, it is the catalytic conversion of ammonia and carbon monoxide to produce hydrogen cyanide. Thus, Gambell, et al. fails to teach all the elements of the present invention as recited in amended independent Claim 1 and, therefore, withdrawal of this rejection is hereby requested.

The method described in Allison, et al. generally concerns the first step of a larger overall process for conversion of methane into higher hydrocarbons, wherein the first step is the conversion of methane into synthesis gas, i.e., a mixture of hydrogen and carbon monoxide, and this first step is accomplished with a two-reaction zone reactor system, both of which produce synthesis gas, which can then be converted in the second step to form the higher hydrocarbons. Since the first and second reactions occurring in the "first step" of the process disclosed in Allison, et al. are both intended to form carbon monoxide as a desired product, neither of the first or second reactions, nor the overall "first step," produces a "waste" oxide gas stream, as required by the present invention recited in amended independent Claim 1. In other words, the oxide gas (carbon monoxide) formed in the process of Allison, et al. is an intended product, not a "waste" product. Moreover, the carbon-monoxide-containing effluent stream of the "first step" in Allison, et al. is formed for the very purpose of being fed to the second step wherein it is converted to higher hydrocarbons. Thus, Allison, et al. fails to teach all the elements of the present invention as recited in amended independent Claim 1 and, therefore, withdrawal of this rejection is hereby requested.

Lastly, Hammer, et al. describes a method for removing nitrogen oxide gases from a flue gas of unknown specific origin, by a series of process steps in which nitric oxide is separated and converted to nitrogen dioxide (i.e., by scrubbing, temperature reduction, and absorption), which is then reacted with ammonium hydroxide to produce

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ammonium nitrate, which is the desired "valuable by-product." However, none of the process steps described in Hammer, et al. comprises a "second process," i.e., any one of oxidation, partial oxidation, oxidative dehydrogenation, and ammonoxidation, as in the method of the present invention recited in amended independent Claim 1. Thus, Hammer, et al. also fails to teach all the elements of the present invention as recited in amended independent Claim 1 and, therefore, withdrawal of this rejection is hereby requested.

Based on the foregoing explanation, it is believed that the present invention, as recited in amended independent Claim 1, is novel and patentable over each of Gambell, et al., Allison, et al., and Hammer, et al. Since each of Claims 2 and 4 depends from amended independent Claim 1, it is also believed that Claims 2 and 4 are patentable and allowable over each of Gambell, et al., Allison, et al., and Hammer, et al.

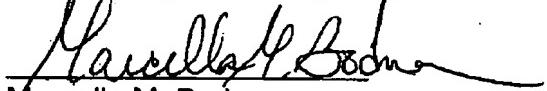
CONCLUSION

Based upon the foregoing Remarks and explanation, Applicants and their attorney hereby respectfully request re-examination and allowance of Claims 1, 2 and 4.

The extension fee of \$120 believed to be due in connection with the submission of this Amendment, since it is being submitted within one (1) month after the originally set due date for response to the final Office Action, is addressed by the accompanying completed Petition for Extension of Time Under 37 CFR § 1.136(a).

No additional fees are believed to be due in connection with submission of this Amendment. If, however, any such fees, including extension and petition fees, are due in connection with the submission of this Amendment, the Examiner is hereby authorized to charge them, as well to credit any overpayments, to Deposit Account No. 18-1850.

Respectfully submitted,



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